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# UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. 81230.578001

First Inventor or Application Identifier Paul D. Arling

Title MEDIA RETURN SYSTEM

Express Mail Label No. EL684658042us

## APPLICATION ELEMENTS

See MPEP chapter 600 concerning design patent application contents.

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)  
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.  
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 25]  
(preferred arrangement set forth below)
  - Descriptive title of the Invention
  - Cross References to Related Applications
  - Statement Regarding Fed sponsored R & D
  - Background of the Invention
  - Brief Summary of the Invention
  - Brief Description of the Drawings (if filed)
  - Detailed Description
  - Claim(s)
  - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C.113) [Total Sheets 5]
5. Oath or Declaration [Total Pages 3]
  - a. ☒ Newly executed (original or copy)
  - b. ☐ Copy from a prior application (37 CFR 1.63 (d))  
(for a continuation/divisional with Box 17 completed)
  - i. ☐ **DELETION OF INVENTOR(S)**  
Signed statement attached deleting inventor(s)  
named in the prior application, see 37 CFR  
1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

## ADDRESS TO

Assistant Commissioner for Patents  
Box Patent Application  
Washington, DC 20231

7. ☐ CD-ROM or CD-R in duplicate, large table or  
Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission  
(if applicable, all necessary)
  - a. ☐ Computer Readable Form (CRF)
  - b. Specification Sequence Listing on:
    - i. ☐ CD-ROM or CD-R (2 copies); or
    - ii. ☐ paper
  - c. ☐ Statements verifying identity of above copies

## ACCOMPANYING APPLICATIONS PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 C.F.R. § 3.73(b) Statement of Power of  
(when there is an assignee) Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS  
Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)  
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)  
(if foreign priority is claimed)
16. ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment,  
or in an Application Data Sheet under 37 CFR 1.76:

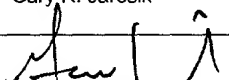
☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: \_\_\_\_ /  
Prior application information: Examiner \_\_\_\_ Group / Art Unit:

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied  
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Name (Print/Type)	Gary R. Jarosik	Registration No. (Attorney/Agent)	35,906
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# FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision

Complete if Known

Application Number

Filing Date

First Named Inventor

Paul D. ARLING

Examiner Name

Group / Art Unit

Attorney Docket No.

81230.578001

TOTAL AMOUNT OF PAYMENT (\$)  
703

## METHOD OF PAYMENT (check one)

1. ☒

The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:

Deposit  
Account  
Number

011,156

Deposit  
Account  
Name

Alzheimer & Gray

☒ Charge Any Additional Fee Required  
Under 37 CFR 1.16 and 1.17

☒ Applicant claims small entity status.  
See 37 CFR 1.27

2. ☐ Payment Enclosed

☐ Check ☐ Credit card ☐ Money  
Order ☐ Other

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	355
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1)

(\$)  
355

### 2. EXTRA CLAIM FEES

Total Claims	32	-20**	=	12	X	9	=	108
Independent Claims	9	-3**	=	6	X	40	=	240
Multiple Dependent					X		=	0

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

(\$)  
348

\*\*or number previously paid, if greater; For Reissues, see above

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Petitions related to provisional applications	
126	240	126	240	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify)

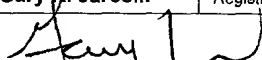
\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3)

(\$)  
0

## SUBMITTED BY

Complete (if applicable)

Name (Print/Type)	Gary B. Jarosik	Registration No. Attorney/Agent	35,906	Telephone	(312) 715-4000
Signature		Date	November 20, 2000		

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**APPLICATION FOR  
UNITED STATES LETTERS PATENT**

Be it known that we, PAUL D. ARLING of 71 New Dawn, Irvine, CA; and  
PATRICK H. HAYES of 22981 Arija, Mission Viejo, CA, USA, have invented a  
new and useful "MEDIA RETURN SYSTEM ."

## **MEDIA RETURN SYSTEM**

### **FIELD OF THE INVENTION**

The present invention relates to media systems, hand-held  
5 electronics and control modules. Specific exemplary embodiments  
discussed relate to remote controls and televisions.

### **BACKGROUND OF THE INVENTION**

The description of art in this section is not intended to constitute  
10 an admission that any patent, publication, or other information referred  
to herein is prior art with respect to this invention, unless specifically  
designated as such.

Recently, cable television and broadcast television has become rife  
with commercials and other interruptions to the primary programming,  
15 or feature (referred to herein, separately and collectively, as  
commercials). While some commercials are amusing, they lose their  
appeal very soon. Changing channels during a commercial break, so-  
called "channel surfing" or simply "surfing" is at least as old as the first  
known remote control. With more and more channels to surf, a user is  
20 prone to become engrossed in the process of surfing itself and miss the  
primary feature he was viewing on the primary channel.

The prior art teaches a method of detecting commercials in a  
television to avoid video taping the commercials. During a television  
broadcast, when the program changes to a commercial, both the video  
25 and audio components of the composite television signal fade to a low  
amplitude level. Momentary loss of both the video and audio  
components at the beginning of each commercial may be used as an  
indicator of a commercial. U.S. Patent No. 4,319,286, issued to  
Hanpachern describes in more detail a system for detecting fades in

television signals to avoid recording from a commercial television broadcast. U.S. Patent 4,319,286 is hereby incorporated by reference.

U.S. patents and applications relevant to remote control technology include U.S. Patent Nos. 5,515,052; 5,255,313; U.S. Pat. App. Ser. No. 5 09/418,091, filed October 14, 1999, and U.S. Pat. App. Ser. No. 09/611,620, filed July 6, 2000, all of which are incorporated herein by reference. Patent '052 discloses a universal remote control with function syntheses. The remote control comprises driver circuitry for communicating code signal generation sequences, including a code 10 generated command system, powered by a code setting signal; and memory for storing information therein. Patent '313 discloses a universal remote control system having a signal generator to transmit signals which will cause specific functions to occur in specific control devices. Pat. App. Ser. Nos. '091 and '620 disclose means and methods, 15 *inter alia*, for operating a remote control. Patent '620 discloses means and methods for interfacing, and navigating with secondary material on a removable digitally encoded medium. The '620 also teaches means and methods for monitoring keystroke navigation sequences and other processes related to remote control technology.

20 Other U.S. patents related to remote control technology, and in particular relating to learning technology, include U.S. Patent No. 4,959,810; 5,288,077; and 5,537,463, which are incorporated herein by reference. Patent '810 discloses means for transferring instruction to RAM wherein the instructions and/or data are transferred from a source 25 external to the RAM. Patent '077 discloses a remotely upgradable universal remote control. Patent '463 discloses means in the remote control for picking up an electromagnetic signal for an electromagnetic signal source and storing output signal data in memory. The output signal data stored in memory may correspond to control function data, 30 which may be transmitted to a device to be controlled.

U.S. patent 6,029,239 describes a remote control in which the user first enters one or more digits of channel number information and then presses a SEND key to transfer the channel change information to a TV set or Cable/satellite decoder box.

5 While the present invention relates to a wide variety of electronics and media systems, discussion of exemplary embodiments directed towards remote controls and televisions will facilitate understanding.

### SUMMARY OF THE INVENTION

10 An object of the invention is to provide a television viewer who "channel surfs" during commercials with a mechanism to automatically return to the original channel at the conclusion of the commercial break. Thus, even if the viewer becomes engrossed in the alternate program content, he is still assured that his television will return to the original  
15 program at the appropriate time.

One possible implementation of this return to channel feature would be to build it into the television set in conjunction with a system capable of detecting advertising content (e.g., the system disclosed by Hanpachern in U.S. 4,319,286). An alternate implementation, for use in  
20 conjunction with existing TVs not so equipped, uses a timer in the remote control to approximate this feature. Other alternatives will be apparent from the teachings of this application.

For one application the present invention is directed toward a media system comprising a television with a tuner connected to receive a  
25 media transmission and to select a channel. A signal monitor is operably connected to monitor the transmission. Channel data may be stored in memory. A primary timer connected to the signal monitor may be reset to time predetermined intervals, e.g., 32 seconds, upon receipt of a predetermined signal indicator, e.g., a black frame or a generated signal  
30 from the signal monitor. Upon expiration of the predetermined interval,

the tuner returns the system to the primary channel, i.e. it selects a channel corresponding to the channel data stored in memory.

The invention also comprises an embodiment directed towards a media system adapted to return to a user-selected channel. A signal  
 5 monitor connected to a tuner of a television monitors a media signal (also referred to as media transmission) for a predetermined event. In response to the occurrence of the predetermined event, the timer begins timing a predetermined interval, or/and may be reset to time the predetermined interval. Stored in memory is programming that, in  
 10 response to a user-initiated signal, initiates monitoring of the media signal for the predetermined event. In general, contemporaneously with the onset of the signal monitoring, the current channel is stored in memory. Upon expiration of the predetermined event, the programming provides for the return to the stored current channel. Preferably the user  
 15 may initiate signal monitoring via a remote control. Such user-initiated signal may be, e.g., in response to a user depressing a button, or key, etc., on the remote control.

An object of the present invention is also to provide a remote control adapted to provide a return to channel feature for a television not  
 20 equipped for a return to channel feature. Such a remote control may, e.g., comprise programming steps stored in memory for storing a primary channel indicator in memory in response to a user-predetermined action, e.g., such as selecting a key. Programming also includes timing a predetermined interval in response to a second predetermined user  
 25 action; and upon expiration of a predetermined interval, transmitting a signal that corresponds to an indicator of the primary channel to a media device. It will be understood that the second predetermined user action may be the same as the first predetermined user action, or it may be different yet similar, such as depressing the same key but for a longer  
 30 duration, or it may be entirely different.

A method of effecting a return to a primary channel in a media device is taught herein. In one embodiment a primary channel, e.g., the channel or an indicator, is stored in device readable memory in response to the input of a user. The primary channel is monitored for a  
 5 predetermined event indicative of a change in programming sources. Upon occurrence of, i.e., in response to, the predetermined event, a timer is initiated, or reset or both. Upon expiration of a predetermined interval, timed by the timer, the system is returned to the stored primary channel.

10 One method of monitoring the media channel comprises monitoring the primary channel for a predetermined event and notifying the user upon expiration of a predetermined interval. The predetermined interval was preferably initiated upon the occurrence of a predetermined event. Such notification may be achieved by exposing the user to either  
 15 the audio or video component of the primary channel, or both. Other means for notification, such as a blinking light on the remote, as well as other audio and visual indicators may be used. It will be appreciated that although this document describes a method that results in an automatic return to the primary channel, it is also possible to implement  
 20 either system to offer only an audible or visible reminder signal rather than an actual channel change.

Various embodiments directed toward a device readable medium are taught in the present invention. The device readable medium, depending on the application, may be located in the television, the  
 25 remote control, a separate adapter, or a combination thereof. Such a device readable medium typically comprises programming steps for carrying out the desired application.

Other objects and advantages in accordance with the present invention will be apparent to those of skill in the art from the teachings  
 30 disclosed herein.



### BRIEF DESCRIPTION OF THE DRAWINGS

In the interest of enabling one of skill in the art to practice the invention, exemplary embodiments are shown and described. For clarity,  
 5 details apparent to those of skill in the art without undue experimentation are generally omitted from the drawings and description.

Fig. 1 is a flowchart depicting one method for implementing a television-based embodiment of the invention.

10 Fig. 2 is a flowchart depicting one method for implementing a remote control-based embodiment of the invention.

Fig. 3 depicts a media system comprising a television without 2-way remote wireless communication.

15 Fig. 4 depicts a media system with a television and a remote control adapted for bi-directional communication with each other.

Fig. 5 shows a block diagram of a television according to an embodiment of the invention.

Fig. 6 shows a remote control according to an embodiment of the invention.

20 Fig. 7 shows a block diagram of a remote control according to an embodiment of the invention.

### DESCRIPTION OF EXEMPLARY EMBODIMENTS

The present invention is discussed in relation to remote controls  
 25 and televisions; however, other uses will be apparent from the teachings disclosed herein. The present invention will be better understood from the following detailed description of exemplary embodiments with reference to the attached drawings, wherein like reference numerals and characters refer to like parts, and by reference to the following claims.

### Television Set-Based Implementation

Hanpachern (U.S. Patent 4,319,286) teaches a method of detecting the start of a commercial by monitoring the received video and audio signals for a momentary absence of both picture and sound, the so-called  
 5 “black frame” that typically results when the signal is switched from one program source to another.

When detected, this black frame occurrence is used to start a timer set to expire 32 seconds later. Since most TV commercials are 30 seconds or less, each new commercial restarts the timer before it expires.  
 10 Finally, 32 seconds after the end of the last commercial, the timer will expire. The period the timer is active can thus be used to signal the duration of a commercial break plus 32 seconds. An additional override timer of a 2 minute duration (or other value deemed typical of a standard commercial break) can optionally be implemented to ensure that this  
 15 “commercial active” signal does not extend beyond that period, even if the program material itself contains black frames.

The Hanpachern invention then proposes use of this commercial active signal to automatically pause a VCR during taping of a show or sporting event, thereby eliminating commercials from the final recording  
 20 of the feature. The television system is not, however, effected – one must still endure the commercials if the broadcast is being viewed contemporaneously with the recording.

The present invention proposes, e.g. use of such a signal generated as described above, or in any other suitable manner, to facilitate  
 25 “channel surfing” during commercials by providing an automatic return to the original, i.e. primary, program at the end of the commercial break.

In one embodiment, the remote control is equipped with a button labeled, e.g., “Surf.” Fig. 1 is a logic flowchart for carrying out one embodiment of the TV-based invention. The use of the term “step” herein  
 30 is not intended to imply a required order to carry out the steps. The

designated numbers are for convenience. At the commencement of a commercial break, the viewer simply presses this surf button before starting to channel-surf. Upon receipt of this surf command (**step 2**), the TV set: stores its current channel number (**step 4**); initiates a  
 5 background process to monitor that primary channel for black frames in the manner described above (**step 6**); and starts 32-second-and-two-minute timers (**step 8**), again as described above. It should be noted that the background process, generally, requires an independent tuner in order to monitor the current channel while the viewer surfs alternative  
 10 channels. Due to this two-tuner reason, this embodiment is especially suited to TV models that incorporate picture-in-picture capability. The existing secondary PIP tuner can be used for these surfing or monitoring purposes.

With the surf feature thus activated, the viewer is now free to issue  
 15 other remote control commands as needed. However, as soon as either of the two timers expires (**steps 10 or 12**), the TV set will automatically tune itself back to the saved channel number (**step 14**), returning the viewer to the program of primary interest at the appropriate time. Additionally, the viewer can cancel the so-called surf timers and  
 20 immediately return to the primary channel at any time by pressing the surf key a second time (**step 16**).

Fig. 3 shows a media system **20** comprising a remote control **22** in communication with a plurality of electronic devices **24**. Preferably the communication link between the remote control **22** and the electronic  
 25 devices **24** is wireless and may include a unidirectional IR or RF link **28**. The TV **32** in Fig. 3 does not include two-way IR capability. By contrast the media system **34** shown in Fig. 4, the TV **36** comprises two-way IR or RF capability **30** for bi-directional communication with the remote control **22'**. For convenience the invention will be described by reference

to TV **32**, though it will be understood that a two-way interface may be used in certain applications.

Fig. 5 shows a block diagram of a TV **32** according to an embodiment of the present invention. The TV **32** includes a first tuner **38** connected to receive a media transmission **40** and to select a channel. A signal monitor **42** is connected to the first tuner **38** to monitor the media transmission **40**, and memory **44** is used for storing channel data. A primary timer **46**, associated with the control logic **53**, is reset, or begins timing, or restarts timing a predetermined interval upon receipt of (i.e. in response to) a predetermined signal indicator from the signal monitor **42**. In one preferred embodiment, the predetermined interval is 32 seconds and the predetermined signal indicator is a, or corresponds to a, so-called "black frame." As discussed above, the TV **32** preferably includes a second tuner **48** for channel selecting, connected to the picture decoding and display circuitry of the TV set (not shown). This allows the first tuner **38** to continue to monitor a specific channel of the media transmission **40** while the second tuner **48** is used to surf various other channels. Upon (i.e., in response to) expiration of the predetermined interval, the tuner **48** is directed by the control logic **53** to select (e.g., tune to) a channel corresponding to the channel data stored in memory **44**. Fig. 6 depicts a remote control **23** such as may be used with the media system **24**. The remote control **23** comprises a signal generator **49** (see Fig. 7), adapted to transmit a control signal, e.g. signal **28**, compatible with the television **32**. In response to a predetermined user action, such as operation of a surf key **50**, the signal generator **49** transmits a signal to the television **32**. Receipt of this signal via the TV's IR receiver **45** (see Fig. 5) causes the control logic **53** to initiate monitoring of the media transmission **40** by the signal monitor **42**. The media transmission **40** is also referred to herein as a media signal **40** or program signal **40**.

Preferably programming **51** is stored in memory **44** to control monitoring of the media signal **40** for the occurrence of a predetermined event. Monitoring may be initiated in response to a user-initiated signal (such as IR transmission **28** generated by depressing surf key **50**).

5 Contemporaneously, or subsequently, the current channel may be stored in memory **44**. Again, upon expiration of the predetermined interval, the system will return to the stored current channel. It should be noted that the predetermined interval may be an override interval timed by an override timer **52** (see Fig. 5). However, preferably, the system

10 reconfigures upon expiration of the first of the predetermined interval, as timed by timer **46**, or the override interval, as timed by override timer **52**.

#### Remote Control-Based Implementation

In an alternate implementation contained entirely, or substantially, within the remote control **23**, or preferably **23'**, the received program signals **40** are not available to be monitored, so a simple timer **54** set for the typical duration of a commercial break is used instead. In a media system such as **34** in which the television set **36** is capable of two-way communication with the remote control **22**, it may be possible for the

15 remote control to automatically determine the active channel number at the moment the surf button **50** is activated. However, in general the remote **23** is not able to automatically determine the active channel number at the moment the surf button **50** is activated. In a media system such as **24**, a means must thus be provided for the user to

20 indicate his desired primary viewing channel ahead of time. Such indication may, however, be performed only once at the outset of each show or sporting event watched, rather than prior to each commercial break. In an alternative embodiment, the remote control may determine the current channel by monitoring direct channel inputs and Up/Down

25 channel changes. This embodiment is discussed in more detail later.

30

Referring to Fig. 2, when the user initially begins viewing a program or event, he indicates to the remote **23'** which channel is of primary interest as follows:

- 5       • Press and hold the surf button **50** for approximately three seconds (**step 60**) until the visible LED blinks twice (**step 62**), signaling that the remote **23'** is ready to accept channel information.
- 10       • Enter whatever sequence of keystrokes is necessary to tune the TV set to the channel in question. Depending on the particular model of TV, this will usually consist of one or more digits, possibly in conjunction with an "enter" or similar key (**step 64**). The remote may, however, be programmed to accept and store any sequence of up to three keystrokes (**step 66**). Also, the three keystroke limit imposed at **step 66** is implementation specific and in practice any reasonable limit up to the maximum keystroke storage capacity available in the unit may be used. To signal the end of key entry, the user presses the surf key **50** once again (**step 68**). This causes the remote to exit this channel entry state and return to normal operation, with the keystroke sequence stored for future use. (In addition, if at any time during the entry process no key is pressed for, e.g., 10 seconds, the remote will automatically exit this channel entry state (**step 70**).)

Whenever a commercial begins and the user wishes to "channel surf" he first briefly presses the surf button **50** (**step 72**). This starts a timer **54** running within the remote control **23'** (**step 74**). The timer **54** is nominally set for a two-minute interval (but configurable by the user for shorter or longer times if desired). During the timing period (i.e. the commercial break), the remote **23'** operates in the usual manner (**steps 76a-76b**) to allow the user to switch channels and view other material.

When the timer expires (**step 78**), the remote **23'** retrieves the previously stored keystroke sequence, the channel data (**step 80**), and plays it back, thereby automatically returning the TV to the desired primary channel (**step 82**).

5 While the user is actively surfing (i.e. the timer in remote control **23'** is running), he can, at any time, cancel the timer **54** and return immediately to the original channel by pressing the surf button **50** a second time (**step 84**).

10 In one embodiment the remote control **23'** comprises programming steps stored in memory **88** of the remote **23'**. The programming may, for example, comprise storing a primary channel indicator in memory **88** in response to a user predetermined action, and starting the timer **54** in response to a second predetermined user action. Note, however, the second predetermined action may be identical with the first  
15 predetermined user action and may be, for example, depressing the surf key **50**.

The memory **88** also includes programming steps for transmitting a signal **28** to a media device **24**, such as television **32**, wherein the signal **28** corresponds to a primary channel indicator. The transmission  
20 may preferably occur upon expiration of a predetermined interval, upon expiration of an override interval, or upon cancellation of the surf mode, for example.

The predetermined user action for storing the primary channel in memory **88** may comprise performing the secondary predetermined  
25 action. In response to the user action, the programming may also determine if the media system is tuned to the primary channel, and if the system is not tuned to the primary channel, tuning it to the primary channel. The channel store operation may occur contemporaneous with, or subsequent to a user action, where such action may for example  
30 comprise depressing the surf key **50**.

From the foregoing, it should be apparent that the present invention teaches a method of effecting, or bringing about, a return to a primary channel in a media device **24**, such as a television **36**. In one embodiment, the method comprises, in response to a user input, storing  
 5 a primary channel in device readable memory (such as memory **88** or **44**, for instance). The primary channel is monitored for a predetermined event indicative of a change in programming sources. The aforementioned black frame is one example of such an indicative event. A timer **54** of a predetermined interval is initiated, either based upon the  
 10 user input or upon the predetermined event. The timer **54** is preferably reset upon occurrence of the predetermined event. Finally, the system is returned to the stored primary channel upon expiration of the predetermined interval.

An override timer, for timing an override timed interval, may also  
 15 be initiated based upon the predetermined event. If the predetermined interval has not expired, the system may be returned to the stored current channel upon expiration of the override time interval. Preferably, the timing of the predetermined interval is terminated upon expiration of the override timer and the return to the stored current channel.

20 In another embodiment, a signal corresponding the primary channel stored in memory **88** is transmitted to a media device **24** adapted to receive the primary channel. For example, the remote control **22** may transmit a signal **28** to the television **36** to return to channel 2. The television **36** then receives the transmission **28** and changes to  
 25 channel 2.

Embodiments of the invention may comprise monitoring a media channel for a predetermined event, and notifying the user upon expiration of (i.e. in response to) a predetermined interval. Such notification may include exposing the user to either the audio component



of the primary channel, the video component of the primary channel, or both.

A more general objective of the present invention is to provide a device readable medium adapted for use in a media system to facilitate providing a notification feature. The medium, in a preferred embodiment, comprises programming steps for storing, in response to the user input, a primary media channel of the media system in device readable memory. More generally, the state of the media system is stored in device readable memory. The media system state typically comprises the status of a plurality of features, parameters and the like. Such parameters include, *inter alia*, channel status, volume status, and picture control status; and may apply to one or more of the devices comprising the overall media system. For example, in system **24** the volume function may be performed by the audio amplifier, and the channel selection may be performed by a combination of the TV set and the Cable Box. In such a case a return to channel function may involve switching of TV inputs as a well as changing channel numbers on one or both of the TV and Cable box. The state of the media system is frequently and easily altered, typically by a user, from a first state to a second state. Generally, the system is altered most often as a result of channel surfing, or other parameter changes such as the muting of the audible portion of a program.

Prior to altering the media system, the user would, generally, actuate the surf key **50** to store the first state of the media system, which includes storing the primary channel and any other desired parameters. Such actuation also sets a timer for a predetermined interval. Upon expiration of the predetermined interval, the user may be notified via visible or audible indicators. Such notification may comprise disengaging the mute button, returning the system back to its first state, or displaying the first channel visual component within a visual display

of the second channel, such as picture-in-picture, or any sufficiently notable change such that the user is notified. Preferably the primary media channel is monitored while the secondary media channels are altered. For example, channel 2, as the primary channel, would be  
 5 monitored while the user surfs through the other available channels, i.e., the secondary media channels.

In systems where the signal for the current channel is not available, the remote control **23** may be programmed with the available channels through known means. As it is desirable to know the current  
 10 channel for some applications of this event, it is useful to monitor an identifier of the media channel. This may be done, for example, by updating to a current channel register the identifier of the current channel, preferably using a channel entry method such as described in U.S. 6,029,239 or alternatively by monitoring number button presses  
 15 and the intervals between them in order to derive channel information. In such an example, direct entry of the channel digits could be transferred to the register, and channel up/down controls would likewise effect the identifier stored in the current channel register. Preferably, however, the television **36** could transmit the current channel to the  
 20 remote.

To reduce processing, the current register may preferably be updated after a delay of several seconds or longer. Thus, for example, changing through the channel would not update the current register because the user is just traversing the available channels to arrive at the  
 25 soon-to-be-current channel. After the user has paused at the now current channel, the current channel register may update with the current channel information read from the available channel cue in the current pointer location. Then, if the user wants to surf, or alter the system but return to the primary, stored channel, the user presses the  
 30 surf button **50**. Depressing the surf button **50** records the media

system's current state and starts available timers. If monitoring is available, that may be initiated as well. Upon occurrence of a predetermined event, the system may return to the first state, or merely notify the user. In an alternative embodiment, the remote **23'** plays, in  
 5 reverse order, all of the commands entered between selecting the surf key **50** and either selecting the surf key **50** again, or the expiration of one of the timers. If desired, non-channel control and non-audio commands can be filtered out such that only the channel and audio status are reset.

While the invention has been particularly shown and described  
 10 with reference to particular embodiments thereof, it will be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the invention. The scope of the claimed invention is intended to be defined by following claims as they would be understood by one of ordinary skill  
 15 in the art with appropriate reference to the specification, including the drawings as warranted.

**CLAIMS**

The invention claimed is:

1. A media system comprising:
  - 5 a television having a first tuner connected to receive a media transmission and to select a channel;
  - a signal monitor connected to the first tuner to monitor the media transmission;
  - memory operably connected for storing channel data; and
  - 10 a primary timer connected to the signal monitor for timing for a predetermined interval upon receipt of a predetermined signal indicator from the signal monitor, wherein the tuner is connected to the primary timer to select, in response to expiration of the predetermined interval, a channel corresponding to channel data stored in memory.
- 15 2. The system of claim 1, comprising a second tuner in the television for channel selecting, while the first tuner receives a media transmission, wherein the signal monitor is connected to the first tuner.
- 20 3. The system of claim 1, comprising a remote control having a signal generator adapted to transmit a control signal compatible with the television, wherein, in response to a predetermined user action, the signal generator transmits a signal to the television that initiates monitoring of the media transmission by the signal monitor.
- 25 4. A media system adapted to return to a user selected channel, the system comprising:
  - a television comprising:
    - 30 a tuner for receiving a media signal and for selecting a channel,

a signal monitor connected to the tuner for monitoring the media signal for a predetermined event,

a timer connected to the tuner and the signal monitor for timing a predetermined interval in response to the occurrence of the predetermined event,

memory, and

programming for, in response to a user initiated signal, initiating monitoring of the media signal for the predetermined event, storing a current channel in memory, and returning to the stored current channel in response to expiration of the predetermined interval; and

the system further comprising a remote control adapted to control the television, the remote control comprising:

a signal generator,

memory, and

programming for transmitting the user initiated signal in response to a predetermined user operation, whereby the user may initiate signal monitoring by the signal monitor

5. The system of claim 4, wherein the television comprises an override timer connected to the tuner and the programming comprises steps for returning the television to the saved current channel in response to expiration of a predetermined override interval timed by the override timer.

6. A remote control adapted to provide a return to channel feature for a media device not equipped for a return to channel feature, the remote control comprising:

a timer for timing a predetermined interval;

memory; and

programming steps stored in memory for:

storing a primary channel indicator in memory in response to a predetermined user action,

starting the timer in response to a second  
5 predetermined user action, and

in response to expiration of the predetermined interval, transmitting to the media device a signal corresponding to the primary channel indicator, whereby the media device returns to the primary channel.

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7. The remote control of claim 6, wherein the programming steps comprises programming steps for transmitting the signal corresponding to the primary channel indicator to the media device, wherein the transmitting is in response to the user repeating the second  
15 predetermined action prior to the predetermined interval expiring.

8. The remote control of claim 6, comprising a key, and wherein the second predetermined action comprises operating the key.

20 9. The remote control of claim 6, wherein the predetermined user action for storing the primary channel in memory is the second predetermined user action, whereby the primary channel is stored in memory and the timer is started in response to the same predetermined user action.

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10. The remote control of claim 9, wherein the timer is started with the channel store operation.

11. The remote control of claim 9, wherein the predetermined  
30 user action comprises selecting a single key of the remote control.

12. A method of effecting a return to a primary channel in a media device, the method comprising:

in response to a user input, storing a primary channel in  
5 device readable memory;

monitoring the stored primary channel for a predetermined event indicative of a change in programming sources; and

initiating a timer of a predetermined interval, wherein the timer is reset in response to the occurrence of the predetermined event;  
10 and

the method further comprising returning the media device to the stored primary channel upon expiration of the predetermined interval.

15 13. The method of claim 12, comprising initiating an override timer of an override time interval and, if the predetermined interval has not expired, returning to the stored current channel in response to expiration of the override time interval and terminating the timing of the predetermined interval.

20 14. The method of claim 12, wherein the user input comprises operating a predetermined key of a remote control, and the method comprises returning to the stored channel in response to a repeated operation of the predetermined key while the timer is running; and, in  
25 response to the repeated operation of the key, terminating the timing of the predetermined interval.

15. A method of effecting a return to a primary channel in a media system, the method comprising:

in response to a user first input of a remote control, setting a timer in the remote control that times a predetermined interval;

storing a primary channel data in memory in response to a user second input; and

5 in response to expiration of the predetermined interval timed by the timer, transmitting a signal corresponding to the primary channel stored in memory to a media device adapted to receive the primary channel.

10 16. The method of claim 15, comprising, in response to a user third input, readying the remote control to receive the primary channel data in memory.

15 17. The method of claim 16, wherein the user first input comprises operating a key and the user's second input comprises operating the key.

20 18. The method of claim 17, wherein the user third input comprises operating the key, including selecting the key for a duration greater than a duration required to effect one of the user first input or the user second input.

25 19. The method of claim 15, comprising, in response to a repeated user first input prior to expiration of the predetermined interval, transmitting the signal corresponding to the primary channel stored in memory.

20. A method of monitoring a media channel, the method comprising:



in response to a user input, storing a primary channel in device readable memory;

monitoring the stored primary channel for a predetermined event indicative of a change in programming sources;

5 initiating a timer of a predetermined interval, wherein the timer is reset in response to the occurrence of the predetermined event; and

notifying the user upon expiration of the predetermined interval.

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21. A method of monitoring a media channel, the method comprising:

in response to a user first input of a remote control, setting a timer in the remote control that times a predetermined interval;

15

storing a primary channel data in memory; and

notifying the user in response to expiration of the predetermined interval, wherein the notifying includes exposing the user to at least one of the audio and the video components corresponding to the primary channel.

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22. A device readable medium adapted for use in a media system, the medium comprising programming for:

storing, in response to a user input, a first state of a media system in a device readable memory;

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altering the media system from the first state to a second state;

setting a timer for predetermined interval in response to a user input; and

30 notifying the user in response to expiration of the predetermined interval.

23. The medium of claim 22, comprising programming for returning the media system to the first state.

5        24. The medium of claim 22, comprising programming for monitoring user input for altering the media system from the first state to the second state and programming for filtering out non-channel system changes.

10        25. The medium of claim 22, comprising programming for:  
         monitoring a primary media channel for a predetermined event while alternating secondary media channels, wherein at least one of the secondary media channels is different from the primary media channel; and  
15        resetting the timer in response to occurrence of the predetermined event.

         26. The medium of claim 25, wherein the programming for notifying comprises programming for returning the media system to the  
20        first state.

         27. The medium of claim 25, comprising programming for determining an identifier of the primary media channel.

25        28. The medium of claim 27, wherein the programming for determining the identifier of the primary media channel comprise programming for tracking changes to the identifier of the primary media channel.

29. A device readable medium adapted for use in a media system, the medium comprising programming for:

storing a first state of a media system, including storing a media channel corresponding to the first state;

5 setting timer for a predetermined interval;

resetting the timer in response to a predetermined event; and

altering the state of the media system in response to a predetermined condition.

10 30. The medium of claim 29, comprising programming for setting an override timer for an override interval, wherein the predetermined condition comprises the expiration of the first one of the predetermined interval or the override interval.

15 31. The medium of claim 30, wherein the programming for altering the system comprise programming steps for returning the system to the first state.

20 32. The medium of claim 29, wherein the predetermined event corresponds to a change in programming sources.

# **ABSTRACT OF THE DISCLOSURE**

The object of the invention is to provide a television viewer who channel-surfs during commercials with a mechanism to automatically  
 5 return to the original channel at the conclusion of the commercial break. A more general objective is to provide a media system with a return to state feature, wherein the status of the system is quickly captured and reset.

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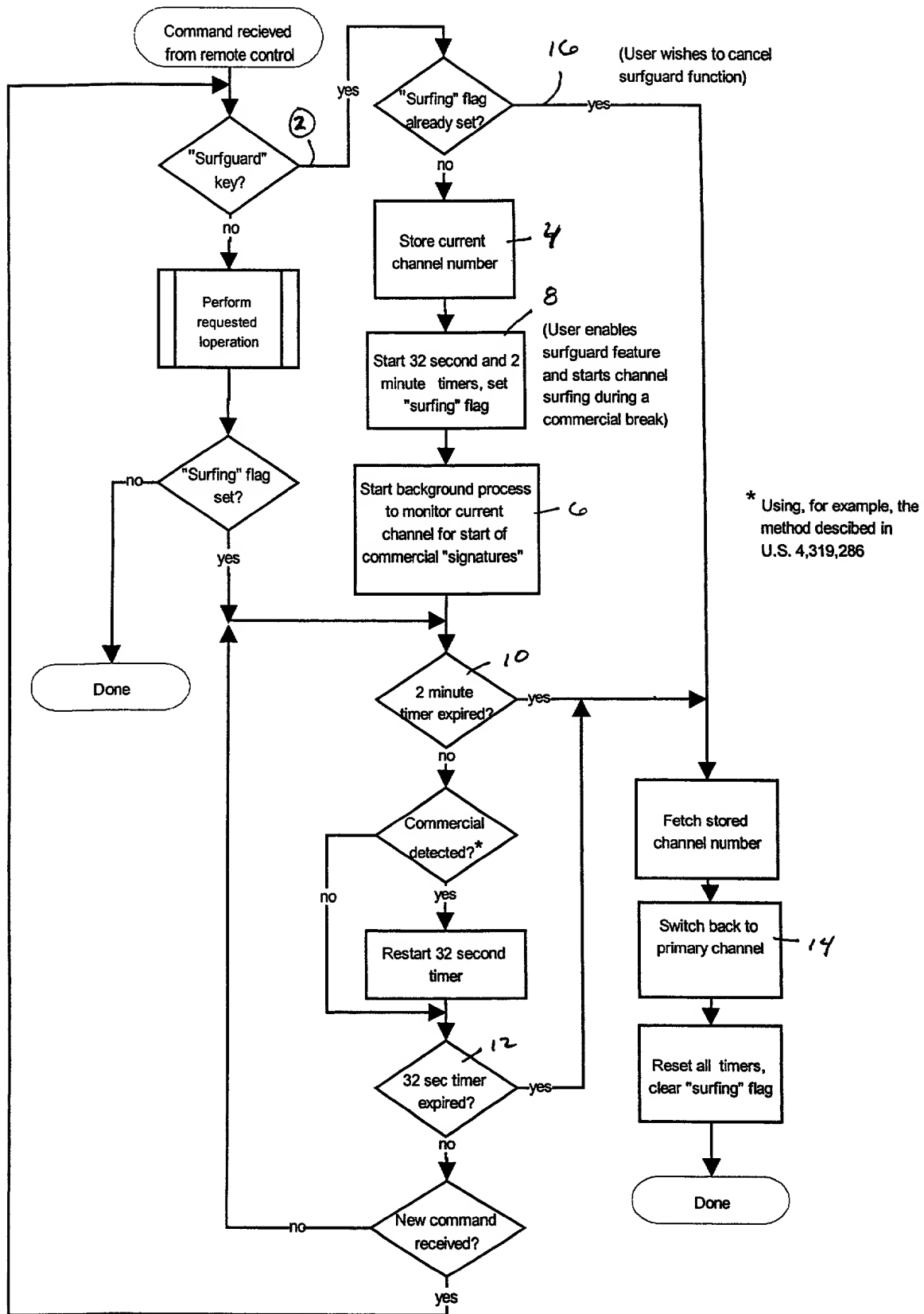


Fig. 1

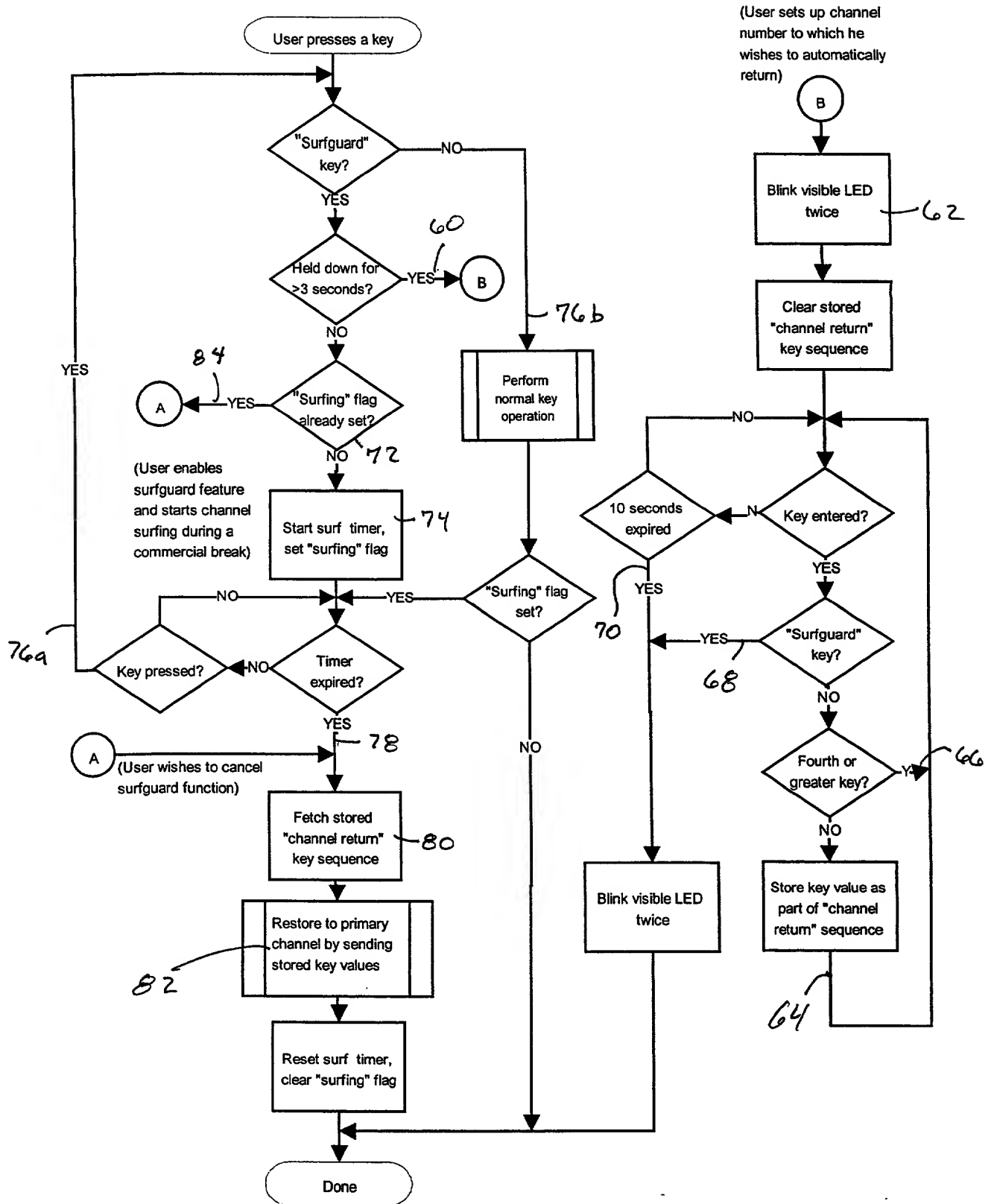


Fig. 2

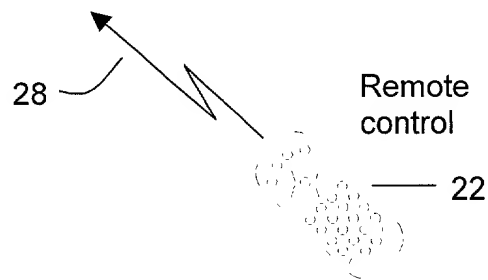
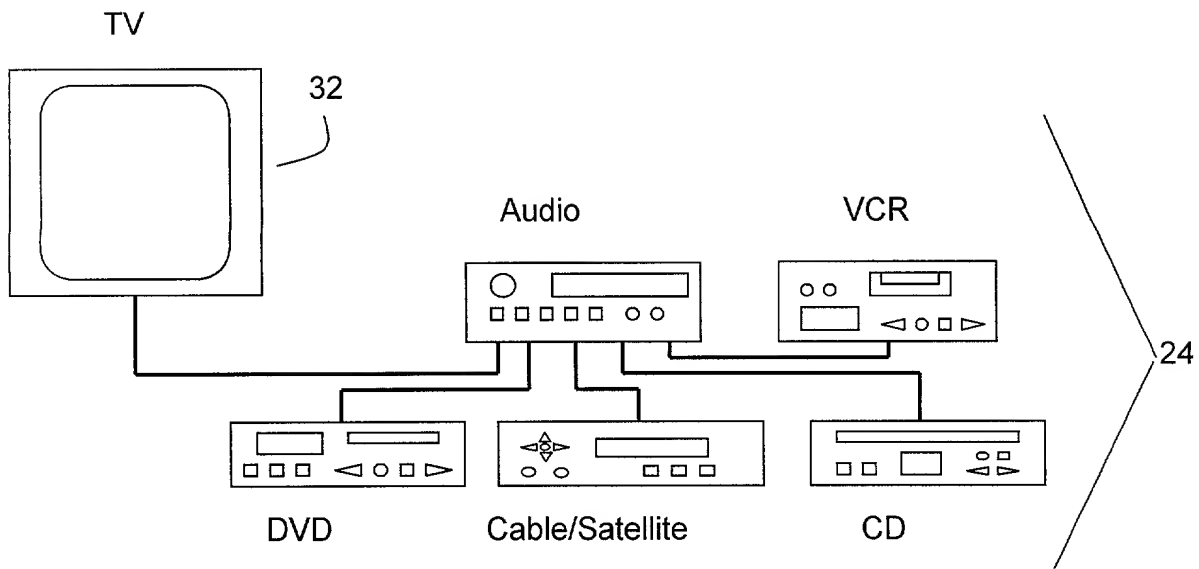


Figure 3

TV with 2-way communication

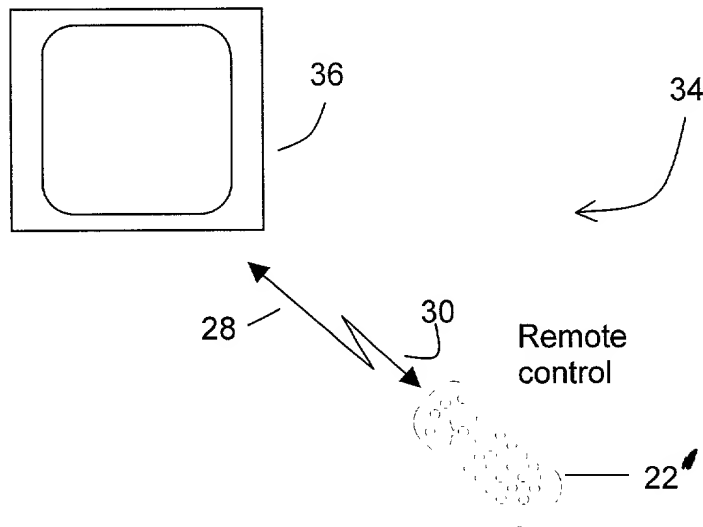


Figure 4

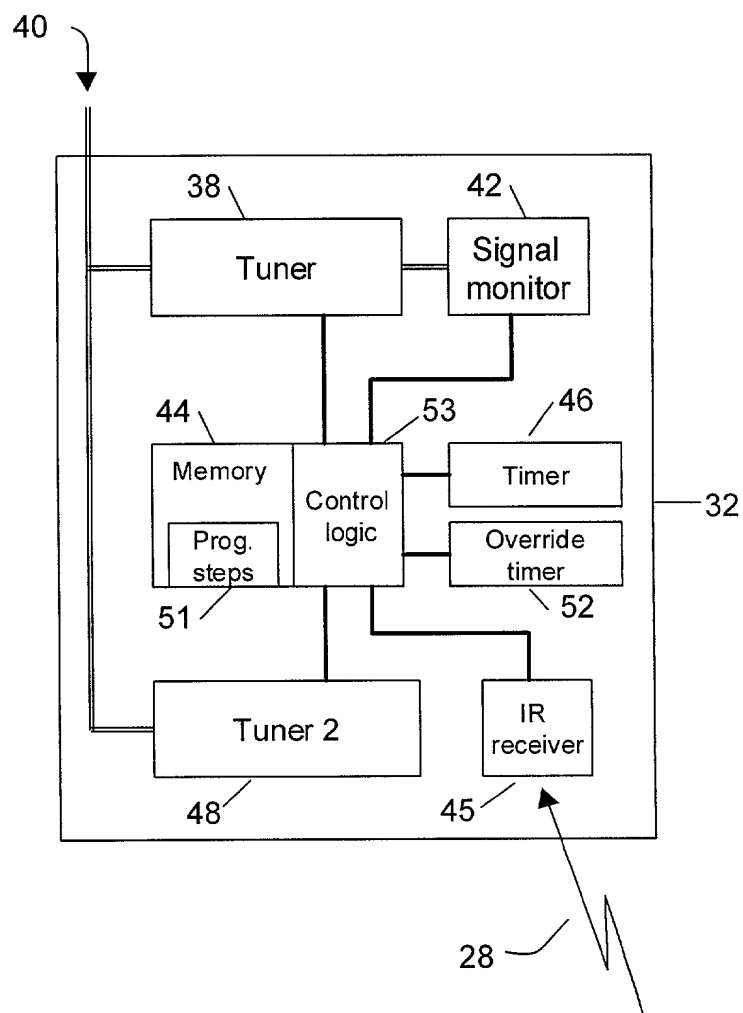


Figure 5



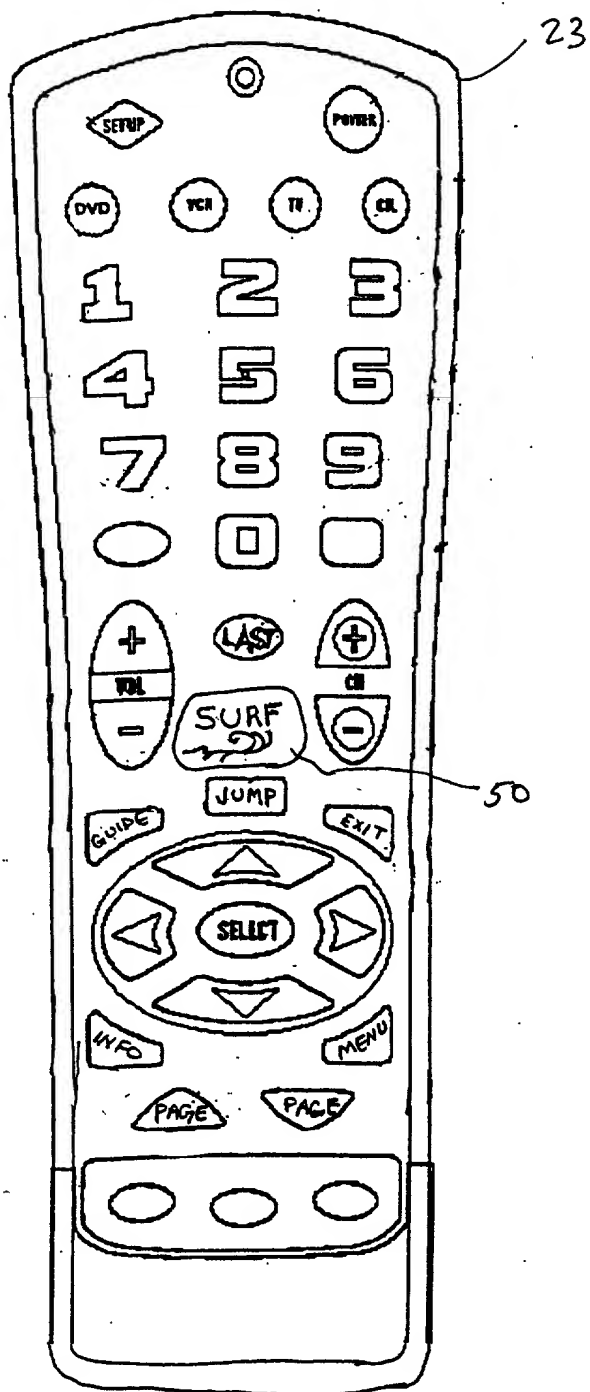


Fig. 6

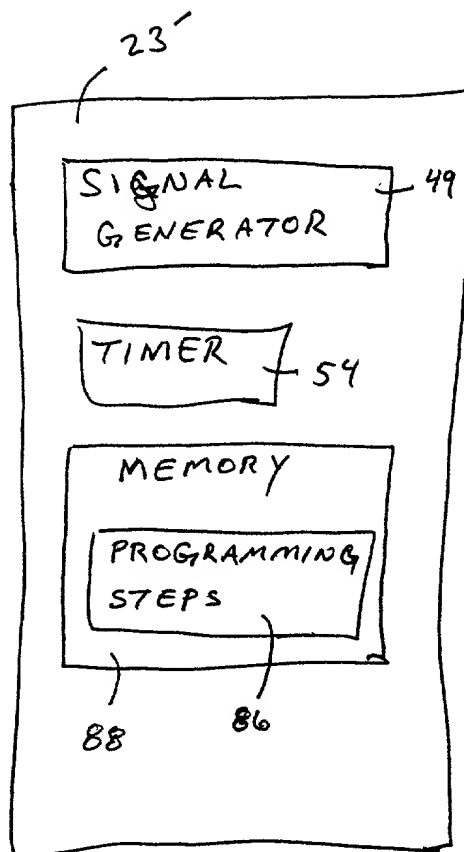


Fig. 7

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	<b>First Named Inventor</b>	Arling
	<b>COMPLETE IF KNOWN</b>	
	<b>Application Number</b>	/
	<b>Filing Date</b>	
	<b>Group Art Unit</b>	
	<b>Examiner Name</b>	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

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the specification of which (Title of the Invention)

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OR

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I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Country	Priority Not Claimed	Certified Copy Attached?	
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				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

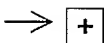
I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 3]

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
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Name of Sole or First Inventor:

☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])				Family Name or Surname			
Paul D.				Arling			
Inventor's Signature						Date	20 Nov 2000
Residence: City	Irvine	State	CA	Country	U.S.A.	Citizenship	U.S.A.
Post Office Address	71 New Dawn						
Post Office Address	71 New Dawn						
City	Irvine	State	CA	ZIP		Country	U.S.A.

☒ Additional inventors are being named on the Declaration supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.

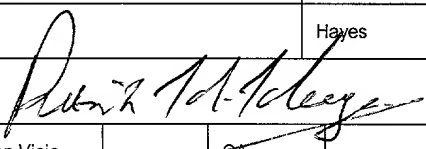
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**DECLARATION****ADDITIONAL INVENTOR(S)  
Supplemental Sheet  
Page 3 of 3**

<b>Name of Additional Joint Inventor, if any:</b>				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])				Family Name or Surname			
Patrick H				Hayes			
<b>Inventor's Signature</b>				<b>Date</b>	20 NOV 2000		
<b>Residence: City</b>	Mission Viejo	<b>State</b>	CA	<b>Country</b>	U.S.A.	<b>Citizenship</b>	U.S.A.
<b>Post Office Address</b>	22981 Arija						
<b>Post Office Address</b>							
<b>City</b>	Mission Viejo	<b>State</b>	CA	<b>ZIP</b>		<b>Country</b>	U.S.A.
<b>Name of Additional Joint Inventor, if any:</b>				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])				Family Name or Surname			
<b>Inventor's Signature</b>				<b>Date</b>			
<b>Residence: City</b>		<b>State</b>		<b>Country</b>		<b>Citizenship</b>	
<b>Post Office Address</b>							
<b>Post Office Address</b>							
<b>City</b>		<b>State</b>		<b>Zip</b>		<b>Country</b>	
<b>Name of Additional Joint Inventor, if any:</b>				<input type="checkbox"/> A petition has been filed for this unsigned inventor			
Given Name (first and middle [if any])				Family Name or Surname			
<b>Inventor's Signature</b>				<b>Date</b>			
<b>Residence: City</b>		<b>State</b>		<b>Country</b>		<b>Citizenship</b>	
<b>Post Office Address</b>							
<b>Post Office Address</b>							
<b>City</b>		<b>State</b>		<b>Zip</b>		<b>Country</b>	

Burden Hour Statement: This form is estimated to take 0.4 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO Assistant Commissioner for Patents, Washington, DC 20231.